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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,517	06/04/2007	Haruhisa Toyoda	070456-0118	1441

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WASHINGTON, DC 20005-3096

EXAMINER
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NGUYEN, TRAN N

ART UNIT	PAPER NUMBER
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2834

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,517	<b>Applicant(s)</b> TOYODA ET AL.	
	<b>Examiner</b> Tran N. Nguyen	<b>Art Unit</b> 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6 and 9 is/are rejected.
- 7) ☒ Claim(s) 3,7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/16/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 112*

2. **Claims 2 and 9** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**In claim 2**, “*said first portion contains soft magnetic powder having a relatively small average particle diameter, and said second portion contains soft magnetic powder having a relatively large average particle diameter*” is indefinite because of the following:

the phrases “*relatively small average particle diameter*” and “*relatively large average particle diameter*” contain relative terms: “relatively”, “small”, “large”, and “average” that render the claim indefinite. The specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In light of the specification, the above recitation is understood as “said first portion contains soft magnetic powder having first particle average diameter, and said second portion contains soft magnetic powder having second particle average diameter, wherein said first particle average diameter is smaller than said second particle average diameter.”

**In claim 9**, “*the average length of said major axis is relatively small in said plurality of flat soft magnetic particles forming said first portion, and the average length of said major axis is relatively large in said plurality of flat soft magnetic particles forming said second portion*” is indefinite because of the following:

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the terms “*average length*”, “*relatively small*” and “*relatively large*” are relative terms that render the claim indefinite, and the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Also, the term “*the average length*” lacks antecedent basis.

In addition, while claim 1 simply recites “a plurality of flat soft magnetic particles”, the recitation in claim 9, which depends from claim 1, appears to state that there are two types of magnetic particles, each magnetic particle type having different length of major axis. This renders the claim indefinite.

According to the spec., there are two types of flat soft magnetic particles. The first flat soft magnetic particle type, forming the first portion of the core, having major axis with small average length, while second flat soft magnetic particle type, forming the second portion of the core, having major axis with large average length.

Thus, in light of the specification, the above recitation is understood as “said plurality of flat soft magnetic particles comprising: first flat soft magnetic particles and second flat soft magnetic particles; wherein first flat soft magnetic particles, define said first portion, having a first average length of said major axis, and second flat soft magnetic particles, define said second portion, having a second average length of said major axis, and said first average length of said major axis is smaller than said second average length of said major axis.”

The following applied art rejections in this Office Action based on the above Examiner’s interpretations, in light of spec., for the indefinite issues addressed herein this 35 U.S.C. 112, second paragraph rejection.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1 and 4** are rejected under 35 U.S.C. **102(b)** as anticipated by **Rosenberry (US 4,392,072)** or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Rosenberry (US 4,392,072)**.

**Rosenberry** discloses a power magnetic core, having a start section (core's pole portion shown in figs 1-3) and a termination section (core's pole portion shown in figs 1-3), formed therein with lines of magnetic force (not shown) but inherently extending from said start section toward said termination section, comprising:

a first portion (2), having a permeability  $\mu_a$ , disposed on the shortest magnetic path of said lines of magnetic force connecting said start section and said termination section with each other; and a second portion (3-6), having a permeability  $\mu_b$  that is greater than the first portion permeability  $\mu_a$ , disposed apart from the shortest magnetic path of said lines of magnetic force;

the power magnetic core is a stator core comprising:

an annularly extending yoke portion (2);

a first teeth portion (3, 5) protruding from said yoke portion (2) in the radial direction thereof so that said start section is disposed on the protruding forward end; and

a second teeth portion (4, 6), protruding from said yoke portion in the radial direction so that said termination section is disposed on the protruding forward end, adjacent to said first teeth portion at an interval, wherein

a slot portion (unnumbered) is defined in a space enclosed with said first and second teeth portions (3-4, 5-6) and said yoke portion (2), said first portion (3-6) extends along said slot portion, and said second portion (2) extends on the opposite side of said slot portion with respect to said first portion (3-6).

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In alternation, **Rosenberry** discloses a power magnetic core is a stator core comprising:  
an annularly extending yoke portion (2) that is formed by laminated amorphous magnetic wound ribbon having a permeability value;

the poles (3-6) protruding from said yoke portion (2) in the radial direction thereof;  
Rosenberry specifically discloses that the poles are formed by magnetic powder (col 4, line 65 to col 5 line 22) having a different permeability value.

Those skilled in the art would understand that amorphous magnetic ribbon is made of magnetic material strips having density that would yield a higher permeability value than the magnetic permeability value of the magnetic powder particles being bonded because there are existing spaces, or gaps, between adjacent bonded magnetic particles, thus the permeability and the density thereof would be lower than that of the yoke made of amorphous magnetic wound ribbon.

Thus, owing to the Rosenberry stator core structure with a yoke of laminated amorphous magnetic wound ribbon, and poles of bonded magnetic powder particles, it would have been obvious to one skilled in the art to configure the core with a first portion having a permeability disposed on the shortest magnetic path of said lines of magnetic force connecting said start section and said termination section with each other; and a second portion having a different permeability that is greater than the first portion permeability disposed apart from the shortest magnetic path of said lines of magnetic force.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. **Claims 5-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sakai et al (JP 2002-112513**, submitted in IDS) in view of **Yasumura et al (JP 2002-343618**, submitted in IDS), alternately, in view of **Mitani et al (JP 08-167518**, submitted in IDS).

**Sakai** substantially discloses the claimed invention of a stator core (figs 1-2) comprising: an annularly extending yoke portion; a first teeth portion protruding from said yoke portion in the radial direction of said yoke portion so that said start section is disposed on the protruding forward end; and a second teeth portion, protruding from said yoke portion in the radial direction of said yoke portion so that said termination section is disposed on the protruding forward end.

**Sakai** does not disclose the stator core is constituted by a magnetic powder core having flat soft magnetic particles, each having a major axis and a minor axis bonded to each other in a manner that the extensional direction of the major axis and the extensional direction of said lines of magnetic force substantially coincide with each other; and,

each of said plurality of soft magnetic particles forming said yoke portion is so bonded that the extensional direction of said major axis and the extensional circumferential direction of said yoke portion substantially coincide with each other, and each of said plurality of soft magnetic particles forming said teeth portions is so bonded that the extensional direction of said major axis and the radial direction of said yoke portion substantially coincide with each other.

**Yasumura**, alternately **Mitani**, each teaches a magnetic power core being formed by molded bonding flat soft magnetic particles, each having a major axis and a minor axis bonded to each other in a manner that the extensional direction of the major axis and the extensional direction of said lines of magnetic force substantially coincide with each other (figs 3-4 in **Yasumura** alternately fig 3 in **Mitani**). **Yasumura** teaches that such magnetic powder core with flat

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magnetic particles would reduce hysteretic loss resulting in low core loss; alternately **Mitani** teaches that such magnetic powder core with flat magnetic particles would provide high magnetic permeability to improve efficiency of the core.

Those skilled in the art would understand that the magnetic interaction between the stator and the rotor are radially oriented, i.e., the magnetic flux lines are in radial direction. Hence, an artisan with ordinary skills and necessary knowledge in the art would find it obvious to configure the flat magnetic particle powder stator core with stator poles wherein each having a major axis and a minor axis bonded to each other in a manner that the extensional direction of the major axis and the extensional direction of said lines of magnetic force substantially coincide with each other. Particularly each of the flat soft magnetic particles forming the stator poles being bonded in the manner that the extensional direction of the major axis and the radial direction substantially coincide with each other in order to enhance the magnetic flux in the stator to ensure efficient magnetic interaction between the stator and the rotor.

Thus, by applying the teaching of **Yasumura**, or alternately **Mitani**, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator core by configuring a flat magnetic particle powder stator core with stator poles wherein each having a major axis and a minor axis bonded to each other in a manner that the extensional direction of the major axis and the extensional direction of said lines of magnetic force substantially coincide with each other; particularly each of the flat soft magnetic particles forming the stator poles being bonded in the manner that the extensional direction of the major axis and the radial direction substantially coincide with each other. Doing so would reduce core loss and enhance magnetic flux therein.



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***Allowable Subject Matter***

**Claims 3 and 7-8** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Claims 2 and 9** would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. **Claims 2 and 9** should be rewritten as in the Examiner's interpretation:

**Claim 2**, in light of the specification, "said first portion contains soft magnetic powder having first particle average diameter, and said second portion contains soft magnetic powder having second particle average diameter, wherein said first particle average diameter is smaller than said second particle average diameter."

**Claim 9**, in light of the specification, "said plurality of flat soft magnetic particles comprising: first flat soft magnetic particles and second flat soft magnetic particles; wherein first flat soft magnetic particles, define said first portion, having a first average length of said major axis, and second flat soft magnetic particles, define said second portion, having a second average length of said major axis, and said first average length of said major axis is smaller than said second average length of said major axis."

***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen via **email** at [Tran.Nguyen@USPTO.gov](mailto:Tran.Nguyen@USPTO.gov)

The applicant is advised that ALL communications via email are UNOFFICIAL. Emailing is only for establishing initial contact with the Examiner.

If the Applicant needs to request an Official Interview, please email to inform the Examiner and an Official Interview will be scheduled accordingly.

If attempts to reach the examiner by email and/or telephone are unsuccessful, the Examiner can be reached via email. If attempts to reach the examiner by telephone or email are

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unsuccessful, the examiner's supervisor, Quyen Leung can be reached on 571-272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. (Note: **Use this Central Fax number 571-273-8300 for all official response.**)

Do **not** use the Examiner's RightFax number without informing the Examiner first because, according to the USPTO policy, any document being sent via RightFax is treated as unofficial response and will not be officially dated until it is routed to the Central Fax.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tran Nguyen/

Primary Examiner, Art Unit 2834